

## **Abstract of the Disclosure**

An electromagnetic transducer such as a tweeter audio speaker, having a very low density diaphragm constructed of a nanoporous material such as aerogel or the like. The solid aerogel diaphragm has improved rigidity and reduced susceptibility to breakup modes. The aerogel may be provided with a skin of e.g. metal, plastic, or oxide to protect it, and it may be built by filling a conventional cone. The skin may encapsulate part or all of the aerogel body's surface, and it may further encapsulate the bobbin, or even the entire voice coil assembly. The nanoporous material comprises a very large percentage of the diaphragm's overall volume, giving the diaphragm a very low overall mass density with respect to conventional diaphragms. This allows diaphragm configurations, such as solid filled spheres, which have excellent stiffness without suffering from the large mass that such shapes would mandate if constructed from conventional materials.